

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claim 29 is requested to be cancelled without prejudice or disclaimer.

Claims 25, 27 and 28 are currently being amended. Support for the amendment to claim 25 can be found at least in Figures 1 and 4 and in the specification on page 5, lines 12-15. New claims 33-39 corresponding to claims 25-28 and 30-32, respectively, have been added. Support for new claim 33 can be found at least in original claim 25, in the specification on page 8, lines 30-33 and in Figures 1 and 4. No new matter has been added.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-28 and 30-39 are now pending in this application, of which claims 1-24 are withdrawn from consideration.

Rejections under 35 U.S.C. § 112, second paragraph

Claims 27-29 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. This rejection is moot with respect to claim 29, which has been cancelled. Claim 28, as amended, merely recites “the catalyst noble metal present in the second catalyst layer comprises rhodium”, and thus is clear and definite.

With respect to claim 27, applicants submit that the limitations of this claim are clear and definite without amendment. In claim 27, the first catalyst layer comprises a first washcoat, and the second catalyst layer comprises a second washcoat. Claim 27 further recites details of the ratios of the mass of the catalyst noble metal in the catalyst layers to the mass of the catalyst noble metal in their respective washcoats. Specifically, claim 27 recites that the mass ratio of the catalyst noble metal present in the second catalyst layer to that in the second washcoat is higher than the mass ratio of the catalyst noble metal present in the first

catalyst layer to that in the first washcoat. Support for these limitations in claim 27 can be found in the present specification at least on page 6, lines 4-9.

Rejections under 35 U.S.C. §§ 102 and 103

Claims 25-26 and 28 were rejected under 35 U.S.C. § 102(b) as being anticipated by EP 918,145 to Ishii et al. ("Ishii '145"). Claims 25-26 and 28 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,296,813 to Ishii et al. ("Ishii '813"). Claims 27-31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over either Ishii '145 or Ishii '813 in view of U.S. Patent No. 4,975,406 to Frestad et al. ("Frestad"). Claim 32 was rejected under 35 U.S.C. § 103(a) as being unpatentable over either Ishii '145 or Ishii '813 in view of U.S. Patent No. 5,152,231 to Patil et al. ("Patil"). Applicants respectfully traverse these rejections for at least the following reasons.

Independent claim 25, as amended, recites as follows:

A catalytic converter, comprising:

a carrier; and

a layered structure disposed on the carrier, the layered structure including:

a hydrocarbon (HC) trap layer trapping HC, said HC trap layer being disposed on the carrier; and

a multilayered catalyst system disposed on the HC trap layer, said multilayered catalyst system comprising a first catalyst layer disposed on the HC trap layer and a second catalyst layer disposed on the HC trap layer, the first and second catalyst layers forming a dual-layered catalyst system that is disposed on the HC trap layer such that HC released from the HC trap layer is purified by both the first and second catalyst layers, said first and second catalyst layers comprising catalyst noble metals, respectively, said catalyst noble metal present in the second catalyst layer being controlled to be active earlier than the catalyst noble metal present in the first catalyst layer. (emphasis added).

Thus, in claim 25, the multilayer catalyst system is arranged such that the first catalyst layer is disposed on the HC trap layer, and the first and second catalyst layers form a dual-layered catalyst system that is disposed on the HC trap layer such that HC released from the HC trap layer is purified by both the first and second catalyst layers, where the catalyst noble metal present in the second catalyst layer is controlled to be active earlier than the catalyst noble metal present in the first catalyst layer. Ishii '145 and Ishii '813 both fail to suggest a

catalytic converter with the arrangement of first and second catalyst layers as recited in claim 25, or the advantages of such an arrangement.

Ishii '145 discloses an exhaust emission control catalyst, and in particular one embodiment as shown in Figure 6 discloses a catalyst divided into an X portion and a Y portion located upstream and downstream, respectively, with respect to exhaust gas flow (col. 6, line 58 to col. 7, line 5). As can be seen in Figure 6, the X portion includes carrier 11, an HC absorption material 13 disposed on the carrier, and a three way catalytic converter layer 14 disposed on the HC absorption material 13. Figure 6 illustrates that the Y portion includes the carrier 11, the three way catalytic converter layer 14 disposed on the carrier, and a high carrier three way catalytic converter layer 15 disposed on the three way catalytic converter layer 14.

Ishii '145 fails to disclose, however, an arrangement where first and second catalyst layers form a dual-layered catalyst system disposed on the HC trap layer such that HC released from the HC trap layer is purified by both the first and second catalyst layers, where the catalyst noble metal present in the second catalyst layer is controlled to be active earlier than the catalyst noble metal present in the first catalyst layer. The Office Action equates the three way catalytic converter layer 14 and the high carrier three way catalytic converter layer 15 of Ishii '145 with the first and second catalyst layers, respectively, as recited in claim 25. The layers 14 and 15 of Ishii '145, however, are not arranged such that layers 15 and 14 form a dual-layered catalyst system disposed on HC absorption material 13 such that HC released from the HC trap layer is purified by both the first and second catalyst layers. In the X portion of the Ishii '145 structure where HC absorption material 13 is present, there is no catalytic converter layer 15, so only the catalytic converter layer 14 would act to purify any HC released from HC absorption material 13. On the other hand, in the Y portion of the Ishii '145 structure the HC absorption material 13 is not present, so there is no HC adsorption material to release HC to both the catalytic converter layer 14 and the catalytic converter layer 15. Thus, even assuming that the layers 13, 14 and 15 correspond to the HC trap layer, and first and second catalyst layers of claim 25, respectively, Ishii '145 does not anticipate claim 25 because the layers 13, 14 and 15 are not arranged in the manner recited.

The remaining references cited in the rejection fail to cure the deficiencies of Ishii '145. Ishii '813 has a very similar disclosure to Ishii '145 and analogous arguments apply. Frestad and Patil were cited for allegedly disclosing details of a washcoat, but also fail to suggest the arrangement of the first and second catalyst layers of claim 25.

Moreover, the references cited fail to suggest the advantages of the arrangement of the first and second catalyst layers of claim 25, where the catalyst noble metal present in the second catalyst layer is controlled to be active earlier than the catalyst noble metal present in the first catalyst layer. With the structure of claim 25, the catalytic converter can be activated earlier, and the purification of the HC released from the HC trap layer is thus improved (See present specification on page 5, lines 4-19). The references cited in the rejection, failing to suggest the arrangement of the first and second catalyst layers relative to the HC trap layer as recited in claim 25, also fail to suggest the advantages resulting therefrom.

Double Patenting

Claims 25-31 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of Ishii '813 in view of Frestad. Claim 32 stands rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of Ishii '813 in view of Patil. Claims 25-31 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-13 of U.S. Patent No. 6,503,862 in view of Ishii '145 and Frestad. Applicants traverse these rejections for reasons analogous to those provided above.

New independent claim 33 has been added. Claim 33 recites “a multilayered catalyst system disposed on the HC trap layer, said multilayered catalyst system comprising a first catalyst layer disposed on the HC trap layer and a second catalyst layer disposed on the HC trap layer, the first and second catalyst layers forming a dual-layered catalyst system that is disposed on the HC trap layer as viewed in a cross-section perpendicular to exhaust gas flow, said first and second catalyst layers comprising catalyst noble metals, respectively, said catalyst noble metal present in the second catalyst layer being controlled to be active earlier than the catalyst noble metal present in the first catalyst layer.” (emphasis added). The references cited in the rejections of the claims likewise fail to render claim 33 unpatentable.

For example, in the Ishii '145 system, neither the X portion nor the Y portion of the Ishii '145 structure has first and second catalyst layers forming a dual-layered catalyst system that is disposed on an HC trap layer as viewed in a cross-section perpendicular to exhaust gas flow. The X portion and the Y portion only have two of the three recited layers as viewed in a cross-section perpendicular to exhaust gas flow.

Claims 34-39 ultimately depend from claim 33, and are patentable for at least the same reason.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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